



Building the Optometry Workforce in Somalia: A Strategic Approach to Preventing Avoidable Blindness and Expanding Access to Vision Care

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Purpose: Somalia faces a substantial burden of avoidable eye disease, while access to primary eye-care services remains uneven and optometry training capacity is limited. This rapid communication reports the pattern of ocular conditions and service needs identified in a large service-based eye-care dataset from Mogadishu and outlines a practical implementation framework for strengthening the optometry workforce in Somalia.

Methods: This study was conducted as a retrospective review of routine service data from 2,890 patients evaluated during community- and hospital-based eye-care programs at Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia, between January and October 2025. Patients underwent routine eye assessments according to program protocols, including torchlight examination, visual-acuity testing, refraction assessment, intraocular-pressure measurement, and dilated fundus examination where indicated. Diagnoses and treatment/referral decisions were recorded and analyzed descriptively using frequencies and percentages.

Results: Among 2,890 examined patients, the most common ocular condition was conjunctivitis (n=1,231; 42.6%), followed by cataract (n=644; 22.3%) and refractive error plus computer vision syndrome (n=410; 14.2%). Other ocular conditions accounted for the remaining cases (n=605; 20.9%). Comorbid conditions included glaucoma with IOP >21 mmHg (n=176; 6.1%), diabetes (n=116; 4.0%), hypertension (n=98; 3.4%), and diabetic retinopathy (n=14; 0.5%). Treatment modalities consisted of medical therapy (n=1,789; 61.9%), prescription spectacles (n=595; 20.6%), surgical procedures (n=457; 15.8%), and referrals (n=64; 2.2%).

Conclusion: The findings indicate a high burden of preventable and treatable eye conditions and support the need for a structured optometry workforce in Somalia. We propose a three-component implementation framework: (1) workforce training (optometry and optical-technician education), (2) decentralized service delivery with referral pathways, and (3) sustainable multi-sector partnerships to expand access to vision care and strengthen long-term eye-care service delivery.

Keywords: Somalia, optometry workforce, primary eye care, avoidable blindness, refractive error, cataract, referral pathways, low-resource settings

Introduction

Visual impairment remains one of the most neglected public-health challenges in Somalia. Despite ongoing cataract surgery campaigns and mobile outreach, the country lacks a structured optometry education system. Without trained optometrists and optical technicians, patients with refractive errors, glaucoma, or diabetic eye disease often present late. Similar workforce gaps have been identified globally, with low-income countries reporting fewer than one optometrist per million populations.^{1,2}

Somalia is a low-income country in the Horn of Africa with a population of approximately 19 million and a large geographic area (about 637,657 km²), creating substantial challenges for equitable health-service delivery across dispersed communities.^{3,4} Eye-care services remain concentrated in major urban centers, while rural, remote, and internally displaced populations face barriers to timely screening, refraction services, and referral-based care.⁵⁻⁷ These



constraints contribute to delayed presentation, continued dependence on outreach and mission-based services, and weak primary eye-care and referral coverage in many settings.⁵⁻⁷

Building national capacity through optometry training aligns with the World Health Organization's World Report on Vision and the Integrated People-Centred Eye Care (IPEC) framework.^{2,5,8}

Methods

This study was conducted as a retrospective review of routine service data from 2,890 patients evaluated during community- and hospital-based eye-care programs at Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia, between January and October 2025. Patients underwent routine eye assessments according to program protocols, including torchlight examination, visual-acuity testing, refraction assessment, intraocular-pressure measurement, and dilated fundus examination where indicated.

Eye examinations were performed by the ophthalmic clinical team at Dr. Sumait Hospital (including eye-care clinicians and trained ophthalmic support staff). Clinical findings, working diagnoses, and treatment/referral decisions were recorded in standardized service registers at the point of care. Data were subsequently entered into a spreadsheet and analyzed descriptively using frequencies and percentages. To support data quality, register entries were cross-checked against the compiled dataset, and obvious discrepancies or duplicate entries were reviewed and reconciled before final analysis.

In this report, the term "preventable and treatable eye diseases" refers to common conditions and service needs identified through the program that can be managed or reduced through timely primary eye care, treatment, and referral, including conjunctivitis, refractive error/computer vision syndrome, cataract, and early detection/referral pathways for elevated intraocular pressure (glaucoma suspect) and diabetic retinopathy.

Results

Among 2,890 examined patients, the most common ocular condition was conjunctivitis (n=1,231; 42.6%), followed by cataract (n=644; 22.3%) and refractive error plus computer vision syndrome (n=410; 14.2%). Other ocular conditions accounted for the remaining cases (n=605; 20.9%), bringing the primary ocular-condition categories to 100%. Comorbid conditions included glaucoma with IOP >21 mmHg (n=176; 6.1%), diabetes (n=116; 4.0%), hypertension (n=98; 3.4%), and diabetic retinopathy (n=14; 0.5%). Treatment modalities consisted of medical therapy (n=1,789; 61.9%), prescription spectacles (n=595; 20.6%), surgical procedures (n=457; 15.8%), and referrals (n=64; 2.2%). These findings reveal a high burden of preventable and treatable eye conditions and reinforce the urgent need for a national optometry service aligned with models reported in other low-resource settings.^{1,5}

Discussion

Our findings demonstrate that a substantial proportion of patients could have benefited from optometric or optical interventions, particularly those with uncorrected refractive error and cataract, which remain major causes of vision loss globally.² In the Somali context, where eye-care services are concentrated in urban settings and outreach activities often serve as a major access pathway, the absence of trained optometrists and optical technicians limits timely primary eye care, early detection, and efficient referral. This gap is especially important for conditions such as glaucoma risk (elevated intraocular pressure) and diabetic eye disease, where earlier recognition and referral may help prevent avoidable vision loss. Establishing an optometry department within Somali universities such as SIMAD University would provide formal education pathways for optometrists and optical technicians, consistent with international recommendations to strengthen human resources for eye care.^{1,5,8}

Our findings are consistent with broader evidence from low- and middle-income settings showing that limited eye-health workforce capacity and fragmented service delivery contribute to delayed detection and persistent unmet need.^{1,5} Naidoo et al reported substantial inequities in the global optometry workforce, with low-income countries remaining far below recommended optometrist-to-population ratios and with lower workforce density associated with a higher burden of blindness and vision impairment.¹ Lee et al further highlighted that integrating eye care into broader health systems in

resource-constrained settings is feasible, but often limited by workforce shortages, competing priorities, and the need for sustained implementation support.⁵

To translate the current findings into practice, we propose a three-component implementation framework for Somalia. First, workforce training: establish accredited optometry and optical-technician training pathways with competency-based curricula, supervised clinical placements, and continuing professional development. Second, decentralized service delivery and referral pathways: deploy graduates through hospital-based eye units, school screening programs, community outreach, and rural/mobile services, where they can function as first-contact eye-care providers for vision complaints, refraction services, and risk screening, with clear referral pathways to ophthalmology for cataract surgery, glaucoma assessment, and retinal disease care. Third, sustainability and system integration: build partnerships among universities, the Ministry of Health, NGOs, and private optical centers to support equipment, mentorship, service quality, and affordable spectacle dispensing while creating local employment opportunities.^{5,8} Promoting optical shops as small enterprises may also create jobs and generate income that can help support community screening activities and continuity of services.⁵

A limitation of this retrospective service-based dataset is that demographic and socioeconomic variables (including age, sex, and indicators of residence or socioeconomic status) were not consistently recorded across routine service registers during the program period. As a result, we were unable to perform reliable age- or sex-stratified analyses, or assess trends by age group, without introducing bias from missing data. Future eye-care programs and screening initiatives should incorporate a standardized minimum dataset (including age, sex, residence, and referral outcomes) to support more targeted service planning, outreach prioritization, and evaluation of equity in access.

Conclusion

Somalia urgently requires a structured optometry workforce to address avoidable vision loss and improve equitable access to vision care. Developing optometry and optical-technician training pathways can strengthen primary eye care by supporting refraction services, earlier detection of eye disease, and timely referral to ophthalmology services. A feasible implementation pathway should integrate workforce training, decentralized service delivery, and sustainable multi-sector partnerships to support long-term eye-care system strengthening in Somalia.

Abbreviations

IOP, intraocular pressure; IPEC, Integrated People-Centred Eye Care; NGO, non-governmental organization; WHO, World Health Organization.

Ethics Approval and Informed Consent

This study involved retrospective review and descriptive analysis of anonymized patient records and community screening data collected as part of routine eye-care services at Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia. Formal ethical approval was not required as the data were aggregated, de-identified, and collected for public-health service evaluation purposes. The research adhered to the principles outlined in the Declaration of Helsinki (2013 revision). Administrative permission to use anonymized data for publication was granted by Dr. Sumait Hospital. All procedures complied with institutional and national ethical standards.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically

reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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